

**TITLE****FABRIC WITH A BASE OF NON-WOVEN FABRIC STRIPS****FIELD OF THE INVENTION**

5 The present invention concerns the field of articles in non-woven fabric, with particular application in the field of cleaning and/or protection of surfaces in the home.

**PRIOR ART**

10 Materials with a non-woven base are widely applied in various sectors. In the procedures for producing articles with a non-woven base, this product is normally unwound from bobbins which hold it and processed by means of the treatments required by the article concerned (for example stitching, rolling, incision of patterns in relief, moulding, cutting into the final shape, etc.); collateral with these procedures is the production of high quantities of waste non-woven fabric, composed of the trimmings left over from cutting the fabric into the desired  
15 dimensions and shape. Most of these trimmings are in the form of strips of various length, derived from lengthwise cutting of the peripheral portions of non-woven fabric unwound from the bobbin.

These materials are normally discarded or recycled in the production of low-value products. The products of recycling thus obtained do not cover the value of the  
20 original material lost in the waste: it is therefore desirable to reduce the waste of material in these procedures, or to increase the economic yield of the recycling of waste, so as to reduce the overall cost of the procedures for producing articles in non-woven fabric.

**SUMMARY**

25 The object of the present invention is a method for increasing the economic yield of the recycling of waste from the processing of non-woven fabric. This result has been obtained by applying the techniques of weaving to non-woven fabrics, that is those materials which on account of their nature do not require any weaving. Using this method it has been possible to obtain textile products composed of  
30 strips of non-woven fabric interwoven like weft and warp. The products thus obtained, intended for the cleaning and protection of various surfaces, for example

in the home, have performances equal to or superior to those of traditional products with a base of textile fibres.

### **DETAILED DESCRIPTION OF THE INVENTION**

The object of the present invention is a textile product composed of a weft and a  
5 warp, in which the weft and/or the warp are composed of strips of non-woven fabric.

It has in fact been observed that strips of non-woven fabric, such as those obtained from production trimmings, can be used in the same way as textile products on a loom and interwoven in the form of a weft and warp, thus obtaining  
10 a fabric with a base of non-woven fibres.

The resulting textile product has proved to be a high-strength product with considerable versatility of application: in particular the best application of the fabric is in the field of cleaning or protection of various surfaces. It can therefore be used in the manufacture of cloths for cleaning floors, of cloths for cleaning small  
15 surfaces in the home (e.g. bathroom, kitchen, etc.), tablecloths, napkins, matting, mats, bedspreads, couch covers, cushion covers, car seat covers, doormats.

All the manufactures obtained with the textile product concerned are also part of the present invention.

The strips of non-woven fabric used in the present invention are preferably  
20 composed of hydroentangled, thermo-bonded or span-bonded fibres. Examples of materials that constitute non-woven fibres are: viscose, polyethylene, polypropylene, polyamide, cellulose pulp.

For the above applications in the field of cleaning and protecting surfaces, the non-woven fabric used has a weight/surface ratio between  $10 \text{ g/m}^2$  and  $200 \text{ g/m}^2$ ,  
25 preferably between  $50 \text{ g/m}^2$  and  $65 \text{ g/m}^2$ .

In one embodiment of the invention, both the weft and the warp of the textile product concerned are composed of strips of non-woven fabric: this process results in products with considerable uniformity. However, the present invention also comprises materials in which the weft is composed of non-woven fibres and  
30 the warp of materials other than non-woven, or vice-versa. In this case materials with different characteristics, which give a different texture, are interwoven, thus

allowing an increased grip between fabric and user, and between the fabric and the surface to be cleaned/protected.

The material other than non-woven fabric may be chosen from various yarns (for example wool, silk, synthetic fibres such as nylon) or it may be non-yarn, such as paper. In particular it has been observed that paper strips can be efficiently interwoven with non-woven fabric, thus obtaining a textile product of high quality and strength.

The strips of which the present textile product are made, be they of non-woven or other material, have a width generally between 1 and 10 cm, preferably between 4 and 7 cm.

As indicated above, the non-woven strips may be a sub-product obtained from processing waste, typically represented by strips of trimmings of non-woven fabric unwound from bobbins or reels. This method is therefore excellent for recycling these materials, obtaining a material with high added value and thus fully recovering the value of the material discarded during the processes for the production of articles in non-woven fabric.

Part of the invention is therefore a method for the recovery of trimmings from the processing of non-woven fabric, characterised in that said trimmings are interwoven to form a textile material, of which the non-woven trimmings constitute the weft, the warp or both.

Although this invention is advantageously suitable for the recovery of processing trimmings, it is nevertheless not to be understood as limited to the use of that raw material. It is in fact also possible, and is part of the present invention, to realise made-to-measure strips having the desired shape, dimensions and weight, and to interweave them together in the form of a weft and warp, in order to obtain products with particular characteristics. It is clear that in this case, thanks to the constant and controlled dimensions of the strips used, the product will present greater uniformity and constancy of characteristics in comparison with a product obtained from recycling strips, which are generally more variable in shape, dimensions and weight.

In a non limiting example of an embodiment of the present invention, selvages (trimmings) of 4-5 cm were used, with a weight of 50-55 g/cm<sup>2</sup>; the selvages

were fed into a loom for weaving special products (with high teething), at the speed of 1 m/h, obtaining a web with a height of 160 cm and a roll with a diameter of 50 cm; cloths were made with dimensions 40 cm X 50 cm with absorbent capacities equivalent to those of products (polyester viscose) used on the market.

- 5 The strength in both CD (*cross direction*) and MD (*machine direction*) was considerably increased (about 3 times that of standard products). The cloth presented considerable duration and resistance in time after being used to clean floors.